Dynamic Design: The Cleanroom

Suiting Up

STUDENT ACTIVITY: FOCUS ON COMMUNICATION

You have learned about cleanroom clothing. Now you get to have some fun with it! In this activity you are going to apply the knowledge that you have gained about cleanroom duds in a class presentation. You may work in pairs, or fly solo on this one—your call. The presentation will be an informative speech on the topic of "suiting up," with the suit of your choice as it relates to the process of suiting up for the Genesis cleanroom. "But what do I REALLY know about suiting up?" you might ask. Well, you have some latitude here. You can select a topic with which you are very familiar, or in which you are intrigued and would like to learn more, and draw a parallel between that topic and cleanroom clothing.

Here is a suggestion. Choose a particular type of attire as it relates to an activity. Examples include the clothing that each of the following wears to do her or his job or participate in a specific activity:

Surgical worker
Race car driver
Football player
Laboratory worker
Yell leader
Ball player
Park ranger
Fly fisher
Fisherman/woman
Rock climber
Goalie

All of the above have specific type of attire to do that job or activity well. The list is not all-inclusive. You can probably come up with a much better example as it relates to your personal interests. The whole point is to choose some type of attire that answers a need to do a specific job.

Once you have chosen a type of clothing, determine the approach of your speech as it relates to suiting up. Two approaches are: a) design, and b) getting dressed. Design may include designing the first (or improving on the present design of) the suit. Think about what you have to consider in clothing design. Below are some things that the first designers of the bunny suit had to consider:

DESIGNING BUNNY SUITS

If you were asked to design a cleanroom bunny suit, what would it look like? You would need to consider the following:

1. Head Cover
   Cover needs to provide a snug fit around the head, covering all hair. The head cover contains loose hair and skin flakes. The most commonly used are hoods, which provide total coverage of the head and neck, and also have a full shoulder drape to fit inside the coverall or frock. Face masks should be used with open-faced hoods.
2. Body Cover
   Coveralls have a full-length zipper from the crotch to the base of the collar, with a covered fly. Grippers (snaps) are recommended for the fastening of the collar. Coverall pant legs should fit into booties (cleanroom shoes).
3. Foot Covers
   Foot covers are cleanroom shoes with booties. Soles are made of a slip-resistant material that is durable.
4. Hand Covers
   Gloves should be long enough to enclose the sleeve opening of the user.

When you talk about design, point out the important features of the suit item, including choice of cloth, cut of the pattern, sturdiness, percent of the body that it covers, limitations, and any additional considerations that would inform the design of a suit of clothes. Draw a distinction between the good points and the drawbacks for each item possible. Share the unique design considerations that impact the utility of a suit of clothing that is necessary to perform a specific job/activity.

THERE IS A SEQUENCE

Design isn't your interest? Then how about the process of getting dressed? You can demonstrate the process that is necessary in suiting up for the game, the 3-day backpacking hike, work in the lab, or dressing for the vertical ascent up the north side of a mountain. Here is an example.

When dressing for a cleanroom, you must always dress from the head down, putting on the head cover, then the basic garment, following by the shoe covers, and finally, the hand covers. If you do so, you will prevent needless contamination of the garment. Here is the general sequence of putting on the bunny suit for a cleanroom.

1. Hold up the unfolded coverall.
2. Grasp the right wrist and waist of the garment with the right hand.
3. Grasp the left wrist and waist of the garment with the left hand.
4. Place the legs of the garments over a rail* without letting it touch the floor.
5. Lift one leg into the leg of the garment, resting the other leg on a rail if necessary.
6. Bring down the garmented leg, keeping the other leg of the garment draped over the rail.
7. Lift the other leg into the garment, again resting the garment on the rail if necessary.

*Note: Although the Genesis cleanroom does not have a rail, some cleanrooms do, for the purpose of keeping garments from touching the floor. Instead of a rail, scientists in the Genesis cleanroom hold the arms and legs of the suit in one hand, take one of the legs in the other hand and step into that leg. "It takes a bit of balance! Put the arms of the garment in one hand and the remaining leg in the other and step into that leg," says scientist Kimberly Cyr.

As you follow the suiting up sequence, offer an explanation as to why that sequence is necessary. Offer practical reasons why this sequence must be followed and consider the problems that might occur if the sequence is done out of order.

THE FINAL PRODUCT

Now develop your outline. Choose two or three main points that you would like to cover. Once that is done, your work is nearly complete. You have an introduction that introduces your topic and purpose, your main points to inform your audience (these will serve as your talking points) and conclude with a summary. Remember to draw a logical link between cleanroom suits and practical considerations for your type of clothing. Your entire presentation should be around five minutes in length. Use visual aids to engage your audience. Visual aids can be hard copy illustrations that are large enough for the audience to see, electronic images from a visual program (such as PowerPoint), or you can bring the real thing (the entire suit) into the class. Don't write out your entire presentation word-for-word on paper. This practice will limit your delivery. Instead, use note cards or a one-page outline to guide you through the presentation. If you know your topic well, your presentation will follow. Open the floor to questions at the end of your presentation. This is where you get to be the authority. If you don't know the answer to a specific question, offer to research the answer and share with the class at a later date. The most important point is to have fun with this exercise.

You have an idea, but don't know where to begin? The next page offers a possible format to use in planning your presentation.

Suiting Up

1) Introduction: “The purpose of my presentation today is to bring to your attention the points that have to be considered when suiting up for a specific activity or work. Genesis scientists wear a bunny suit in the cleanroom to prevent contamination of their working environment. Laboratory workers and in-line skaters also wear specific items of clothing that serve a purpose in their work/activities. Today, we are going to examine . . .”

2) Main point #1:
   a) “Did you know that . . . ?”

   b) “Another type of . . .”

3) Main point #2
   a) “Most people don’t realize that . . .”

   b) “This is an important point because . . .”

4) Main point #3
   a) “Another point to consider is that if you don’t . . . “

   b) “Some possible results from this might be . . .”

5) Conclusion: “In conclusion, I would like to share with you that just like a scientist who enters a cleanroom has certain considerations in suiting up, so too, the . . .”